

REPLACEMENT CLAIMS

Cancel claims 1-3.

4. (Amended) A method for forming a contact to a semiconductor substrate of a first conductivity type, comprising:

providing a semiconductor stack including an active layer formed on a first insulator layer, wherein the first insulator layer is formed on the semiconductor substrate; implanting the semiconductor substrate through the first insulator layer with a first species to form a first doped region within the semiconductor substrate, wherein the first doped region is the first conductivity type and is more heavily doped than the semiconductor substrate;
after the implanting, forming a gate dielectric on the active layer;
forming a gate electrode on the gate dielectric;
forming a source region in the active layer adjacent a first side of the gate electrode;
forming a drain region in the active layer adjacent a second side of the gate electrode, wherein the second side is opposite the first side; and
forming a first contact electrically connected to the first doped region

10. (Amended) A method of forming a contact to a semiconductor substrate of a first conductivity type, comprising:

providing a semiconductor stack including an active layer formed on a first insulator layer, wherein the first insulator layer is formed on the semiconductor substrate; forming a gate dielectric over the active layer; forming a gate electrode over the gate dielectric; forming source and drain regions in the active layer and adjacent the gate electrode as to form a channel region underneath the gate electrode; removing a portion of the active layer; forming a second insulator layer adjacent the active layer and on the first insulator layer; forming a doped region within the substrate before forming the gate electrode, wherein the doped region is the first conductivity type and is more heavily doped than the semiconductor substrate; forming a first opening in the second insulator layer and the first insulator layer; and

forming a conductive material within the first opening.

17. (Amended) A method of forming a contact to a semiconductor substrate of a first conductivity type, comprising:

providing a semiconductor stack including an active layer formed on a first insulator layer, wherein the first insulator layer is formed on the semiconductor substrate; removing a portion of the active layer; forming a second insulator layer adjacent the active layer and on the first insulator layer; forming an opening in the second insulator layer and the first insulator layer; forming a conductive material within the opening; forming a doped region within the semiconductor substrate under the area of the opening before forming the conductive material within the opening, wherein the doped region is the first conductivity type and is more heavily doped than the substrate; and forming a transistor in the active layer after forming the doped region.

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